

Spatial planning of MPAs: resolving conflicts between users

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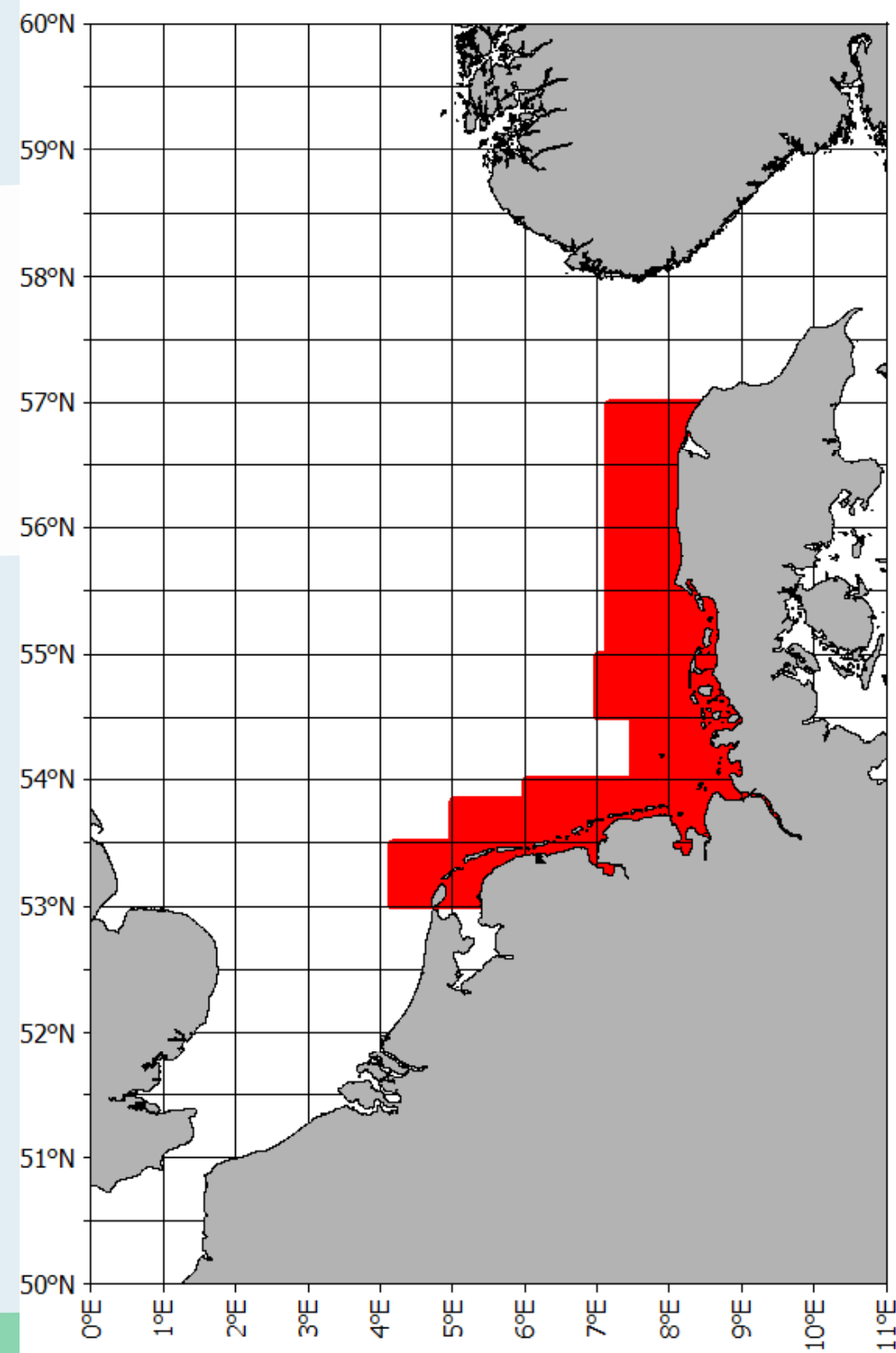
Westbanks Symposium, Leuven

22nd of March 2011

1. Overview of the state of the art of MPA development in Germany
 - a) Plaice Box
 - b) Nature 2000 in EEZ
 - c) Nature 2000 in territorial waters & national parks
 - d) Areas in numbers
2. Conflict Analyses
 - a) Stakeholder involvement & interviews
 - b) Mapping of activities
 - c) Cross border analyses
 - d) Conflict matrix
 - e) Scenario modelling
3. Resolving Conflicts
 - a) Marine spatial planning
 - b) Technical development
4. Outlook

1. a) Plaice Box

- Marine Protected Area (MPA) in the German Bight off the coast of NLD, GER, DEN
- To reduce plaice discard
- 1989 (2. & 3. quarter)
- 1995 (whole year)



1. a) Plaice Box

- No vessels >221 kW (300 hp)
- But still trawling for
 - Common shrimp (no TAC, no quota)
 - Plaice (TAC)
 - Sole (TAC)

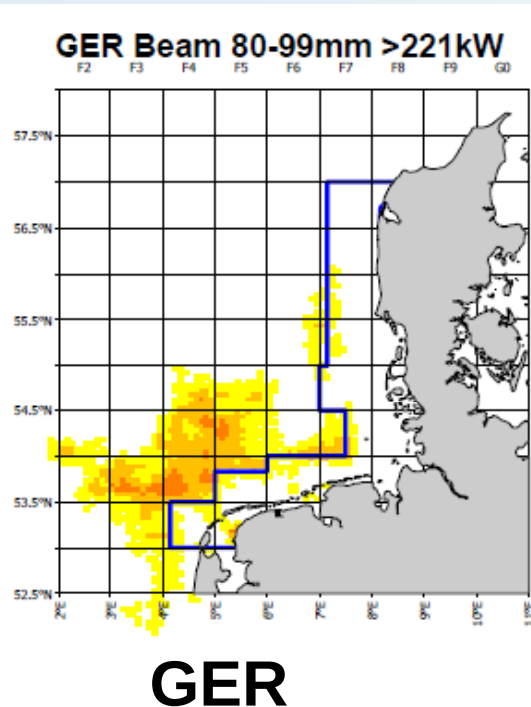
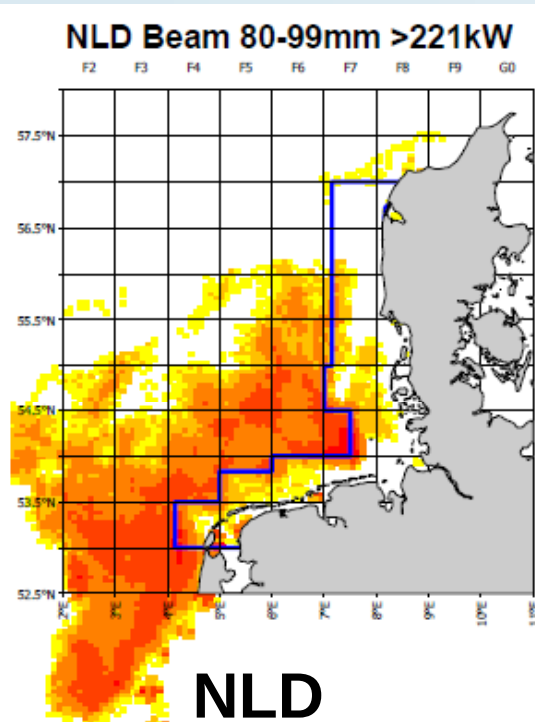
German shrimper
15 to 20 m
<< 300 hp



1. a) Plaice Box



>221kW



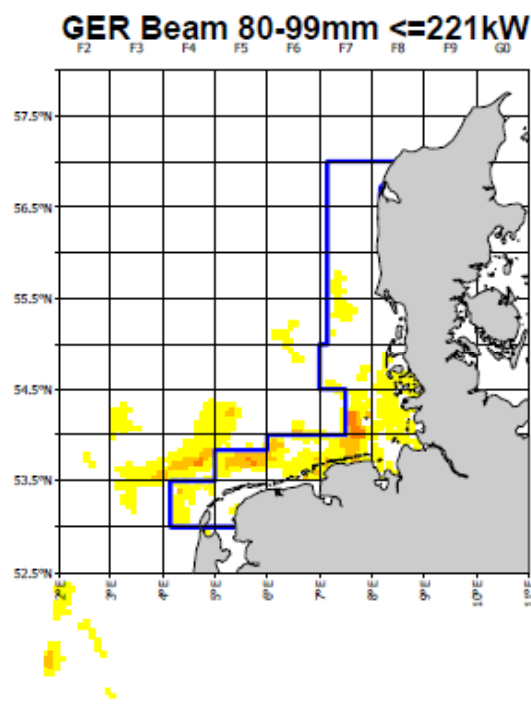
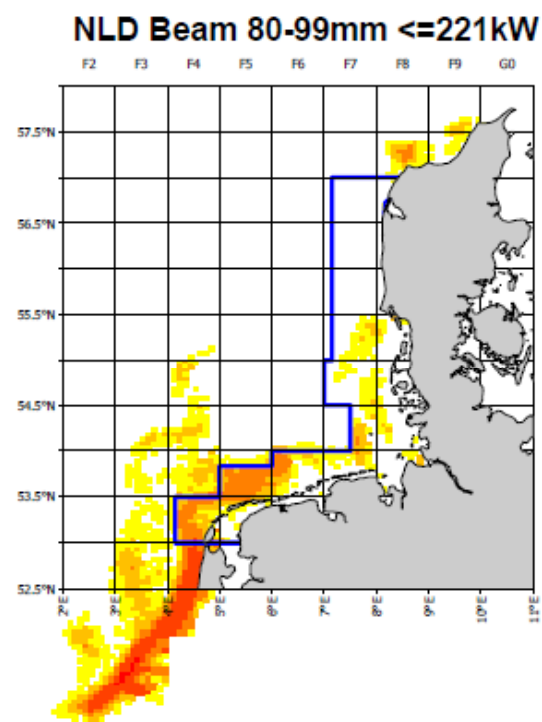
Effort 2008

from VMS data

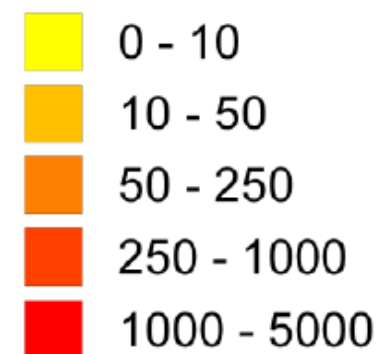
BEAM.80-99mm

Mixed flatfish
fisheries

<=221kW



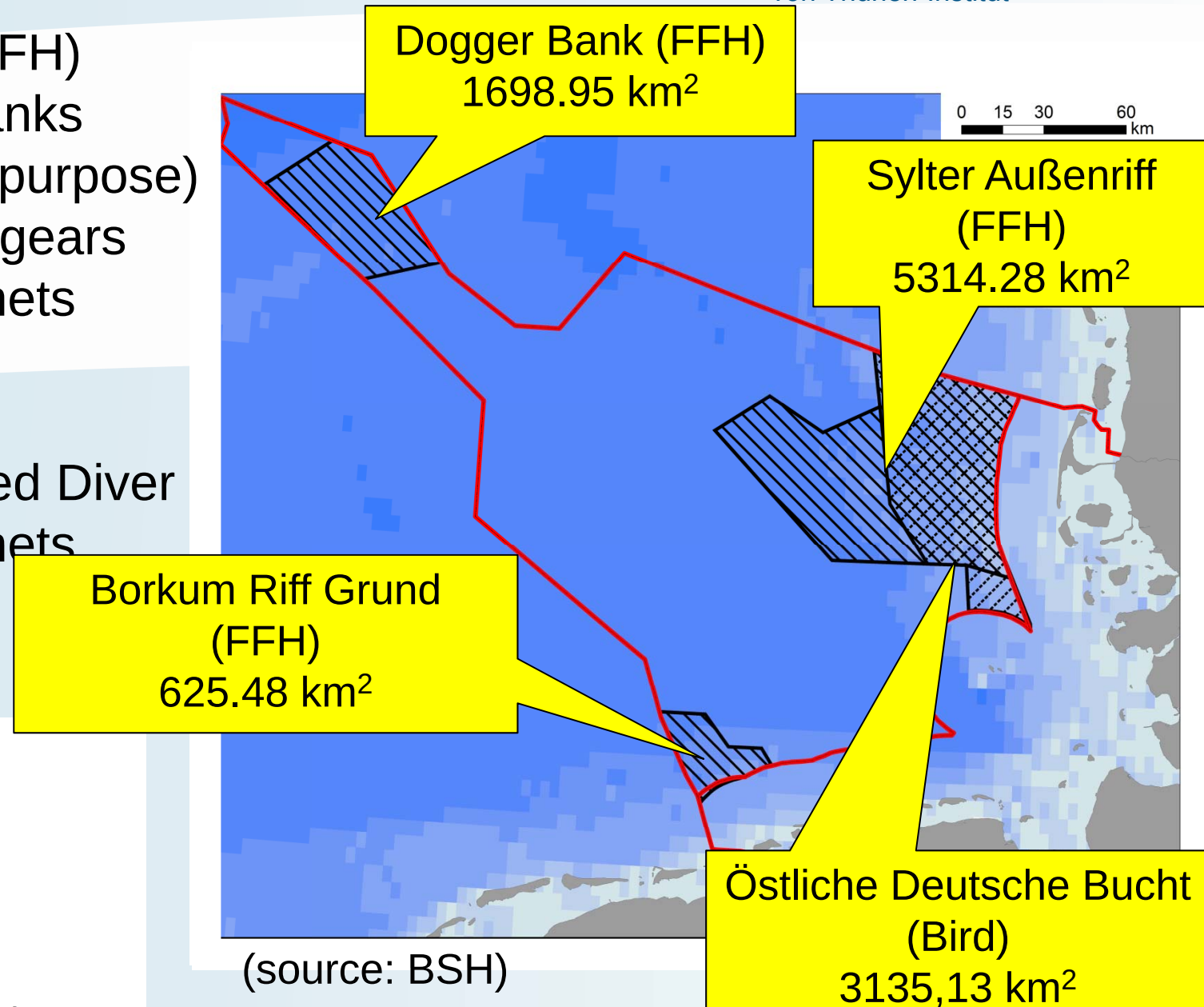
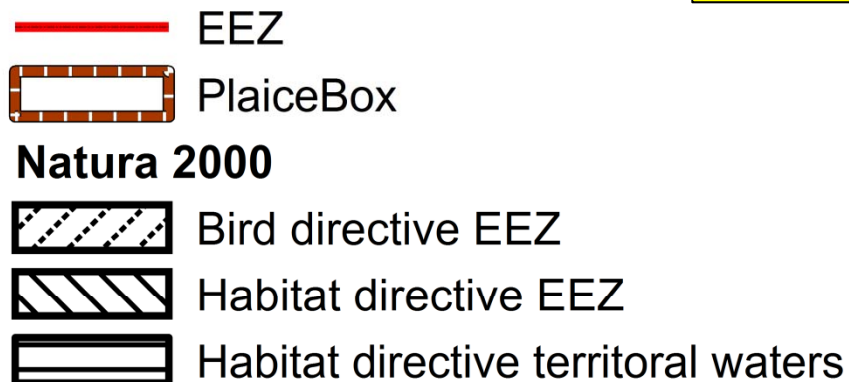
hours fishing per year



(Beare et al. 2010)

1. b) Nature 2000 in EEZ

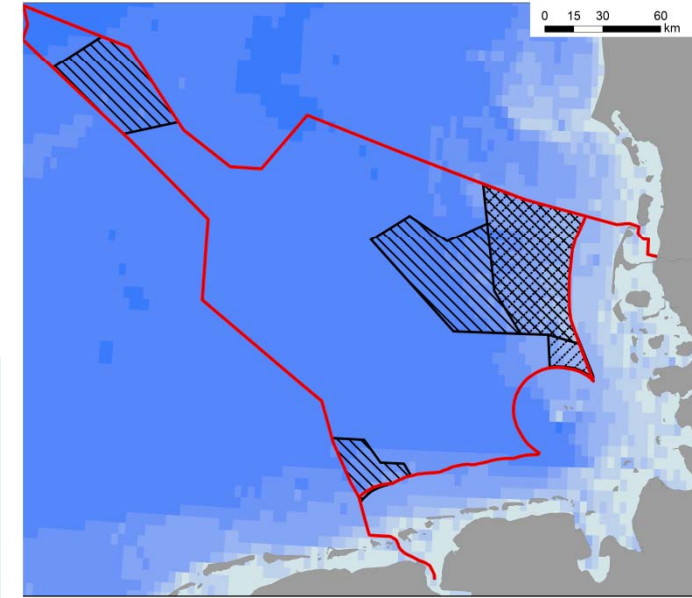
1. Habitat directive (FFH)
 - a) Riffes & sandbanks
 - b) Wales (Harbour purpose)
 - c) Bottom contact gears
 - d) Gill & trammel nets
2. Bird directive
 - a) e.g. Red-throated Diver
 - b) Gill & trammel nets



1. b) Nature 2000 in EEZ

Ongoing process

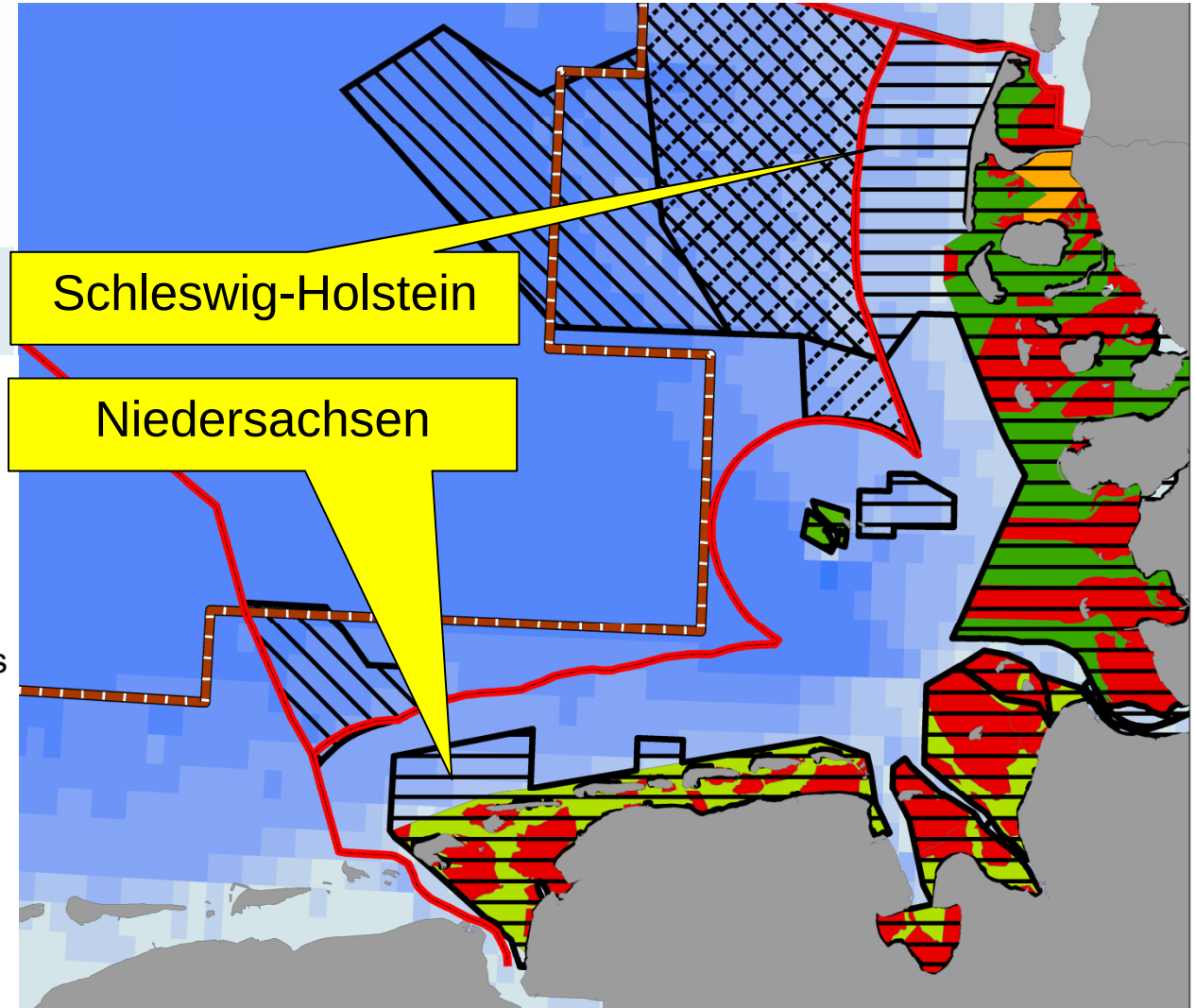
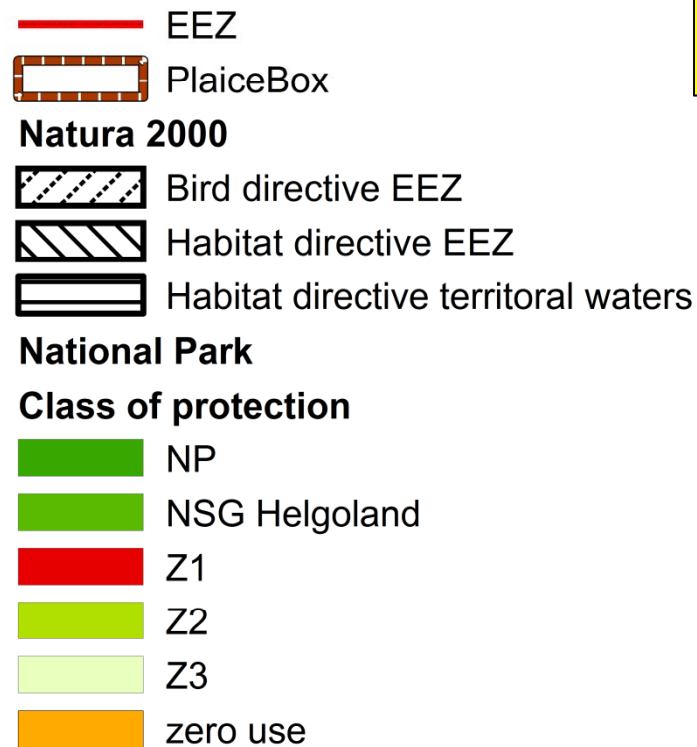
1. Scientific assessment of areas (ongoing)
 - a) vTI and Federal Agency for Nature Conservation (BfN)
 - b) Evaluation of environment and fisheries
2. Management scenarios/options
 - a) Spatial & temporal management
 - b) Specific gears (bottom contact, gill & trammel nets)
3. Politics have to decide
 - a) Federal Ministries: BMU (Environment) & BMELV (Fisheries)
 - b) Stakeholder involvement



1. c) Nature 2000 in territorial waters & National Parks

Nature 2000

1. Ongoing process
 - a) Federal states
 - b) Development of integrated management plan

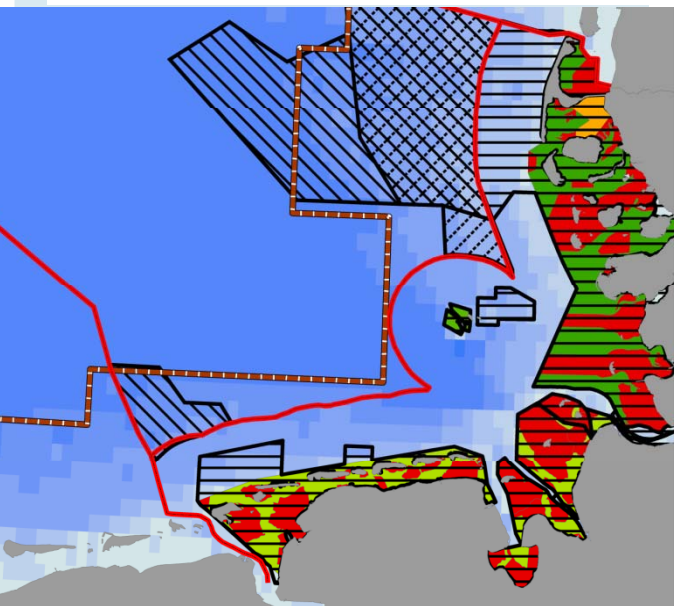


(source: BSH, BfN, Land Schleswig-Holstein)

1. c) Nature 2000 in territorial waters & National Parks

e.g. Activities & Management in national park "Schleswig-Holsteinisches Wattenmeer"

- 1 bestimmte, in Seekarten bezeichnete Gebiete dürfen außerhalb der Fahrwasser nicht bei Niedrigwasser befahren werden
 - 2 küstennah bis ca. 1 km erlaubt (aktuelle Beschilderung beachten)
 - 3 Austern und Miesmuscheln zum eigenen Verzehr, max. 10 l/Tag
 - 4 Fischereischein erforderlich
 - 5 Handstrauß mit Ausnahme von Strandflieder und Strandnelke
- 6) Only defined areas
- ...
- 8) Only platform „Mittelplate A“
- 9) Only Areas east of Sylt and Amrum
- 10) Only in areas covered by water



d verboten (-)

Schutzzone 1 Nutzungsfreies Gebiet (nördlich Föhr)	Schutzzone 1 übriges Gebiet	Schutzzone 2

Kommerziell

Oil extraction	-	-	-8
Fishing of oysters	-	-	-9
Fishing of Shrimps and fish	-	+	+
Fishing of cockles	-	-	-
Fishing of mussels ¹⁰	-	-6	+

1. d) German MPA areas

Marine site nominations to EC by November 2009.

Country	Number of marine SCI	Marine SCI area (km ²) <i>„habitat“</i>	Biogeographical status of SCI nominations	Number of marine SPA	Marine SPA area (km ²) <i>„bird“</i>
Belgium	2	198	C	4	315
Bulgaria	14	592	I	14	539
Denmark	125	16,145	C	59	12,180
Germany	53	19,768	C	15	16,055
Estonia	46	3,752	I	27	6502
Ireland	97	6014	I	66	810
Greece	114	6344	I	77	1099
Spain	97	7926	I	33	1034
France	132	25,709	I	73	33,041
Italy	162	2254	C	45	2724
Cyprus	5	50	I	1	21
Latvia	6	562	I	4	520
Lithuania	2	171	I	1	171
Malta	1	8	I	0	0
Netherlands	14	10,857	C	6	4895
Poland	6	3600	I	4	6490
Portugal	25	775	I	10	622
Romania	6	1353	I	1	-
Finland	98	5460	I	66	5567
Sweden	334	7512	I	108	4018
UK	49	12,409	I	4	901

1. d) German MPA areas

EEZ area covered by marine Natura 2000 sites for selected countries (2009).

Source: National websites.

Country	% of EEZ covered
Germany	31.5
The Netherlands	19
Denmark	12.3
UK	2

Number of conservation objectives by Special Areas of Conservation (SAC) in Germany

SAC	No. of habitats Directive annex species/habitats	No. of conservation and restoration objectives	No. of further specifications/ comments
Sylt outer reef	7	58	7
Borkum reef ground	6	43	6
Dogger Bank	3	21	5
Fehmarn Belt	4	25	8
Kadet trench	2	16	5
Adler ground	4	24	10
Western Rönne bank	2	12	4
Pomeranian Bay and Odra bank	4	23	4

(Fock 2011, Marine Policy)

2. Conflict analyses



a) Stakeholder Involvement

The COEXIST Project



COEXIST is a broad, multidisciplinary project which will evaluate competing activities and interactions in European coastal areas. The ultimate goal of the COEXIST project is to provide a roadmap to better integration, sustainability and synergies across the diverse activities taking place in the coastal zones of Europe.

The purpose of this document is to identify stakeholder issues and interactions in the various study sites around Europe e.g. issues and interactions between aquaculture sectors and fisheries or aquaculture and wind parks.



The **Activities** examined in this study site are **aquaculture, fisheries and wind parks** in the North Sea*

***Note - This document is for use in CS5**

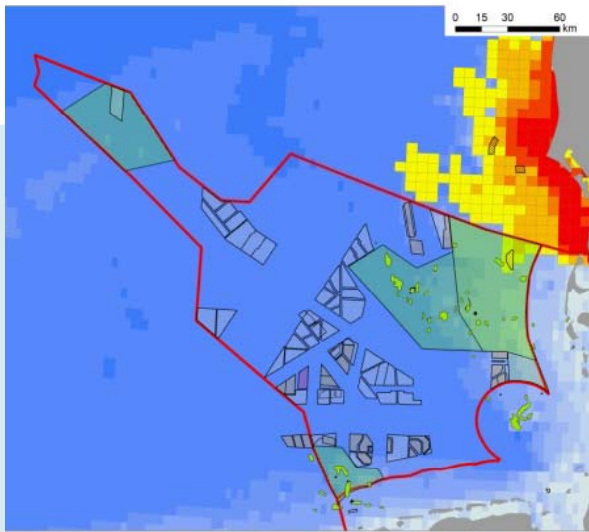
SECTION 1 - About you/your organisation or sector

1.1 Name of respondent		
1.2 Name of Company or organisation/sector		
1.3 Type of company or organisation/sector	☐ Fisheries ☐ Aquaculture ☐ Tidal/Wave Energy ☐ Shipping and Transport ☐ Military Activity ☐ Maritime Spatial Planning ☐ Conservation ☐ Aggregate Extraction ☐ Wind Parks ☐ Oil/Gas Extraction ☐ Cables/Pipelines ☐ Tourism ☐ Government Agency ☐ NGO Other (list below)	

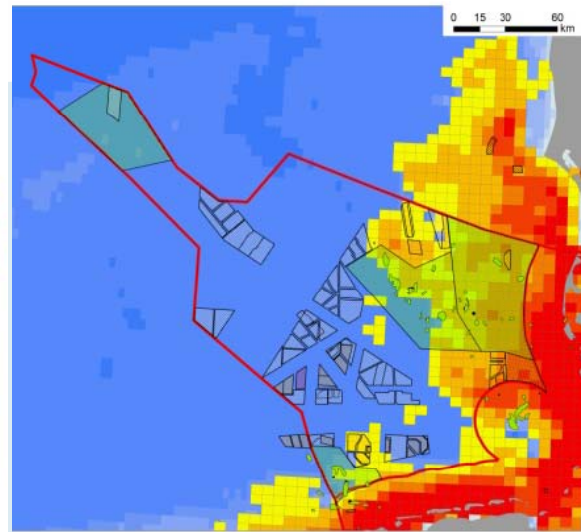
2. Conflict analyses

b) Mapping of activities

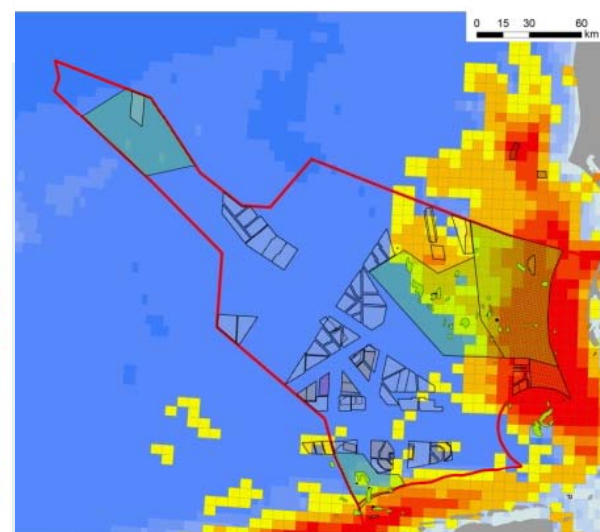
International fishing activities within the German EEZ of the North Sea (e.g. Shrimp Fisheries)



DENMARK

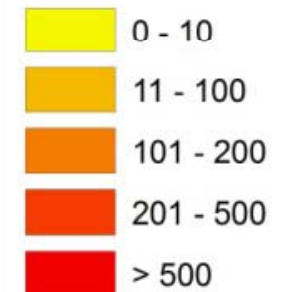


GERMANY

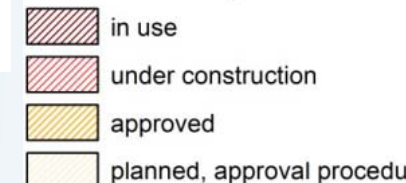


NETHERLANDS

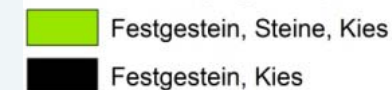
effort (hours)



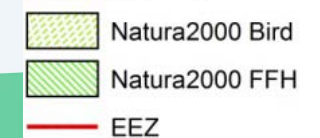
Windfarms by Status



SEDIMENT (p-geo-n)



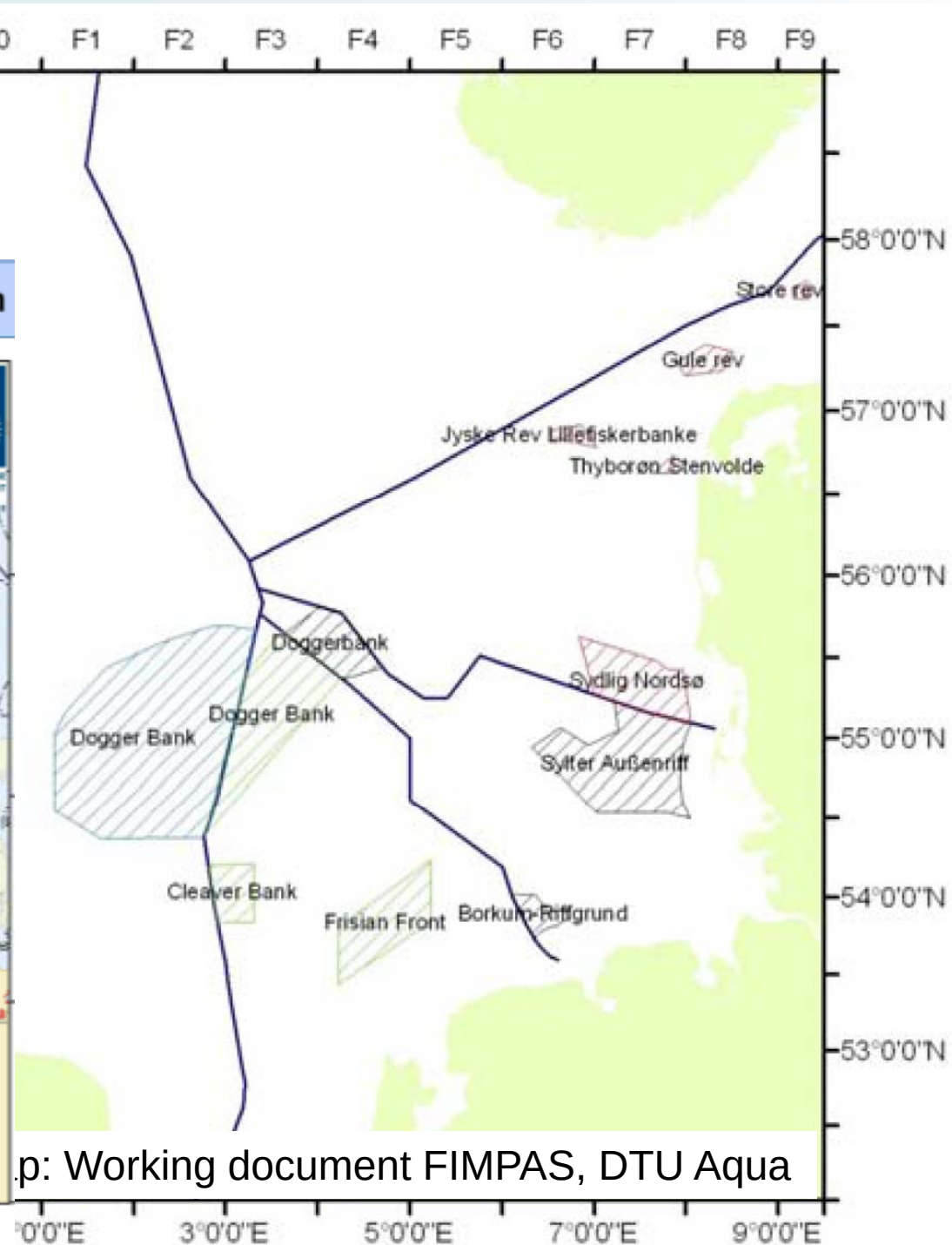
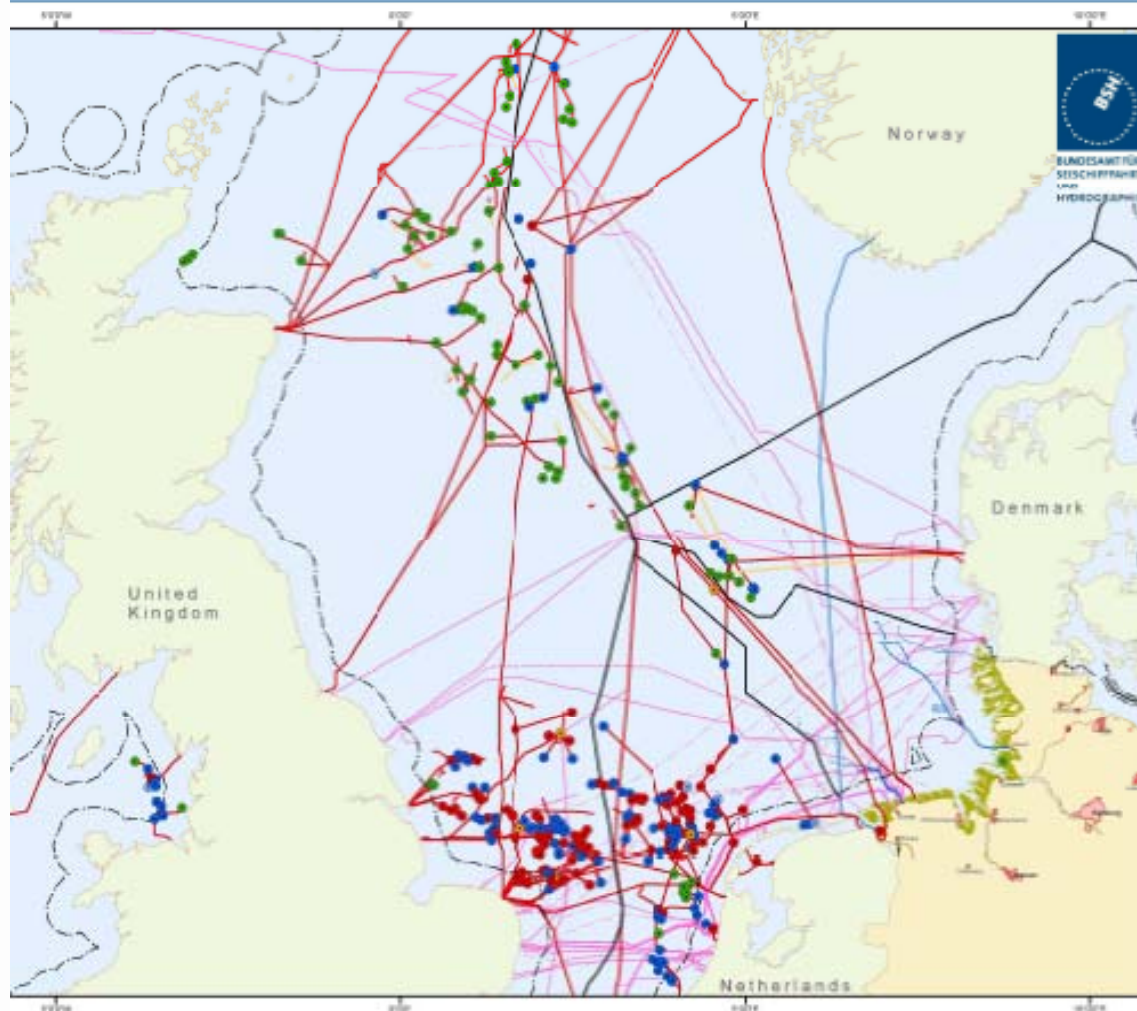
Natura 2000



2. Conflict analyses

c) Cross border analyses

Transnational pipelines and submarine cables in the North



p: Working document FIMPAS, DTU Aqua

activity	mobility	level of time scale	level of space scale
Pelagic trawling	m	1	1
Beam.16-32 <=221kW	m	1	1
Beam.>= 80 <=221kW	m	1	1
Beam.>= 80 >221kW	m	1	1
OTB.>= 80 <=221kW	m	1	1
OTB.>=80 >221kW	m	1	1
DRDG.4-6	m	1	1
GillTram	f	2	2
Oysters	f	2	2
permanent mussel beds	f	3	2
seed mussel collectors	f	2	2
Wind farms	f	3	3
Oil & Gas	f	3	3
Aggregate extraction	f	2	2
Shipping (corridor)	f	3	3
Clsd areas: permanent	f	3	3
Clsd areas: intermittent	f	2	3
Coastal development	m	2	1

Semi-quantitative conflict score

Trait of activities

- level of mobility (fixed/mobile)
- level of time scale (1, 2, 3)
- level of spatial scale (1, 2, 3)

Rule based calculation of score

Level of conflict

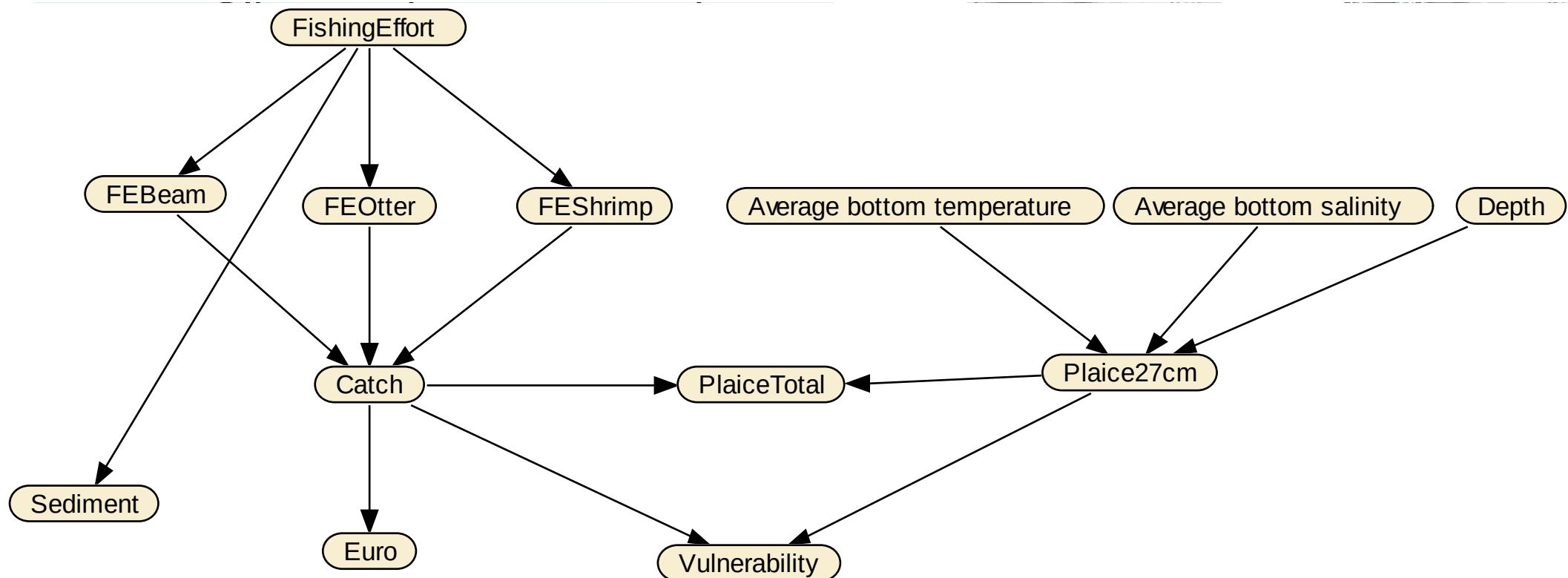
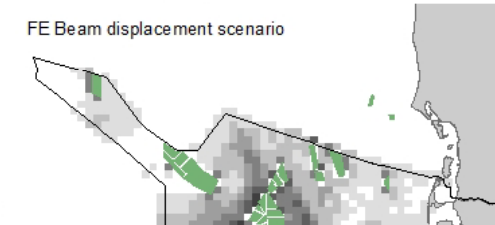
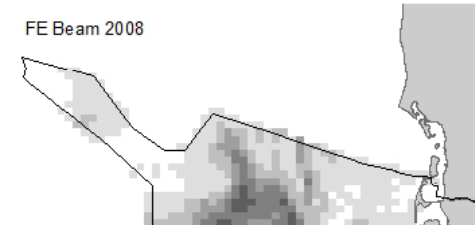
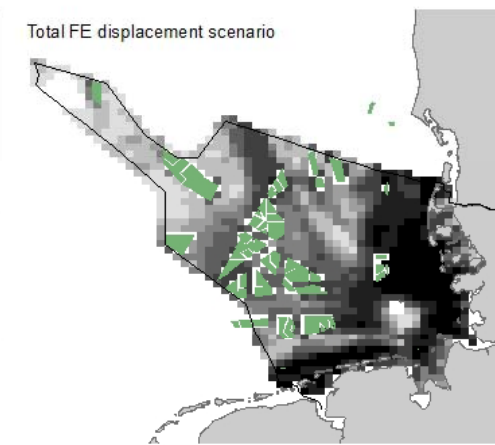
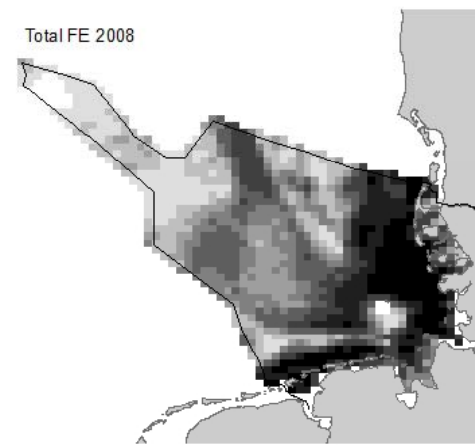
0	no conflict
2	low level of conflict
3	medium level of conflict
4	high level of conflict
5	very high level of conflict
6	mutually exclusive

2. Conflict analyses

e) Scenario modelling

Spatial management scenarios to assess potential environmental and economic consequences

e.g. Bayesian-Belief-Network-GIS-framework

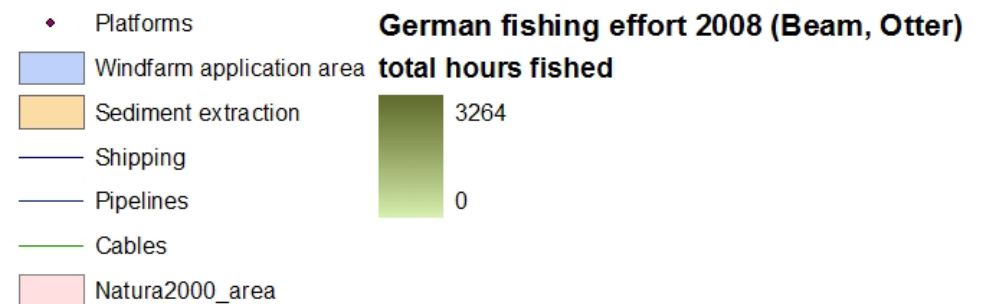
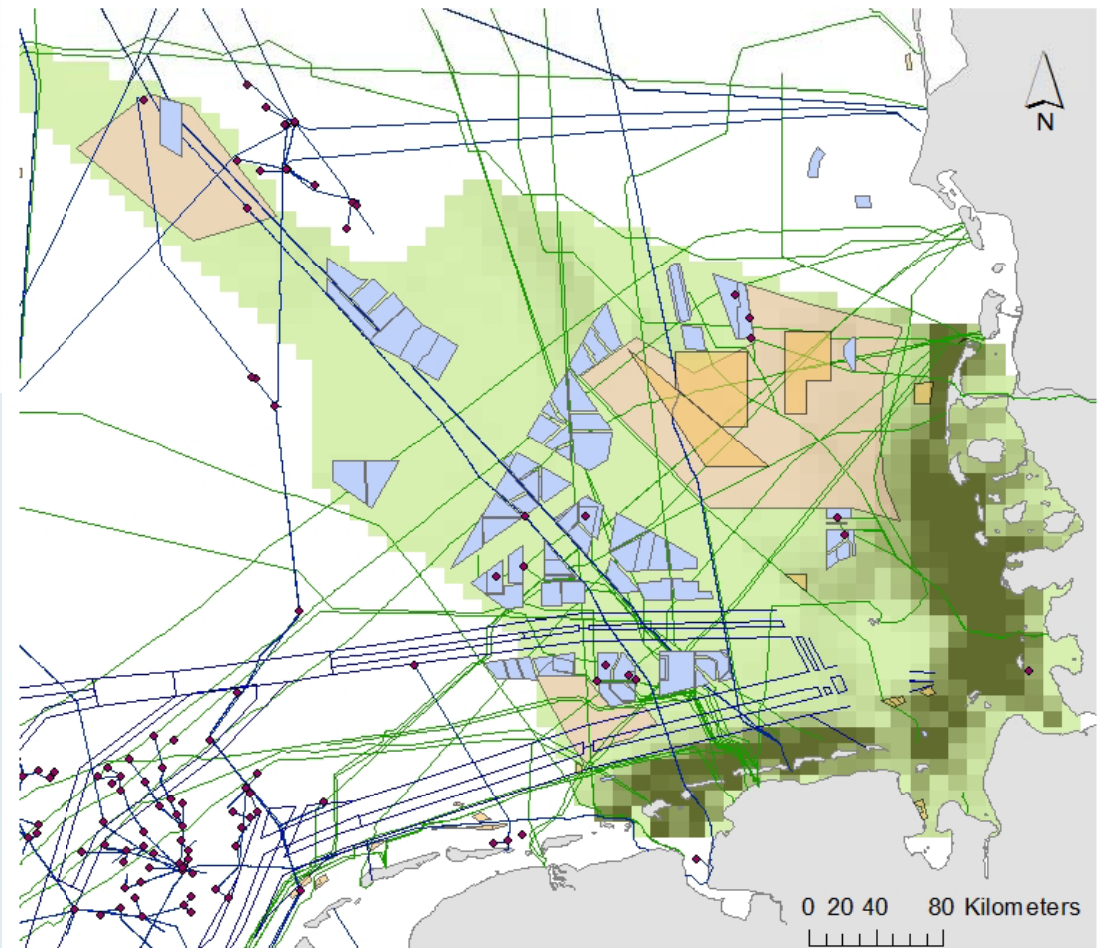


Resolving Conflicts

a) Marine spatial planning (MSP)

l) robust tools

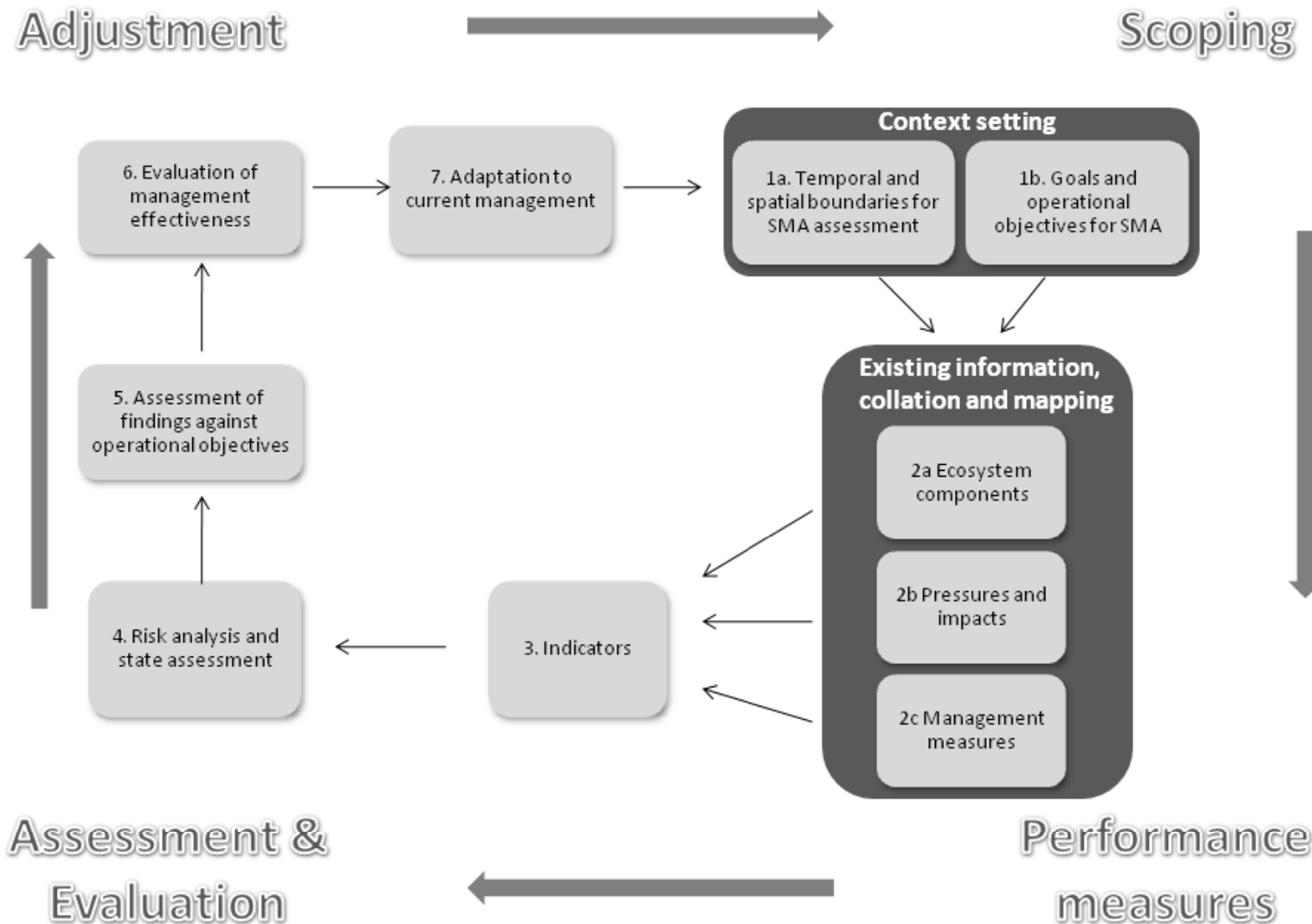
- Rules & Standards
- Distinct definitions
- Enforcement



Resolving Conflicts

a) Marine spatial planning (MSP)

II) Monitoring and evaluation of Spatially Managed Areas (SMA) Generic framework to the MESMA case studies



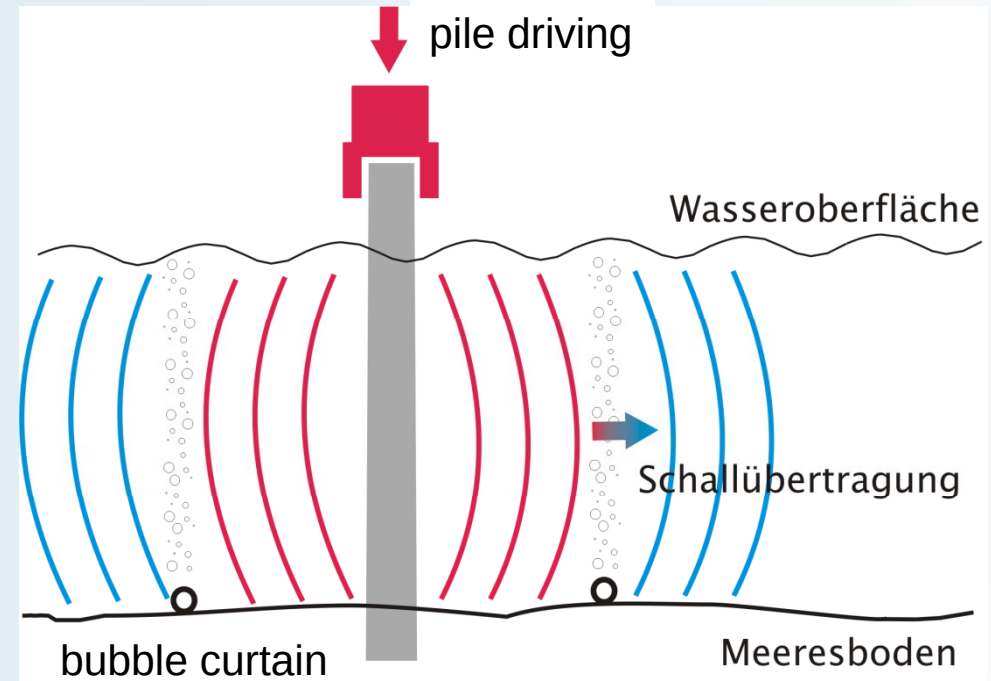
Resolving Conflicts

b) Technical development

- I) Multi use of wind farm areas
- II) Noise reduction during wind farm construction (bubble curtain)
- III) Use of DC instead of AC for power lines
- IV) ...



www.awi.de



<http://rave.iset.uni-kassel.de>

- Emerging conceptual and technical tools can support the resolution of conflicts
- The development of future spatial use scenarios is crucial for the evaluation of management options
- Risk based methods should be used to assess the potential ecological and economical consequences of management targets
- Only an ecosystem based approach to spatial management can support a sustainable development

Thank You!



www.mesma.org



www.coexistproject.eu



MASPNOSE

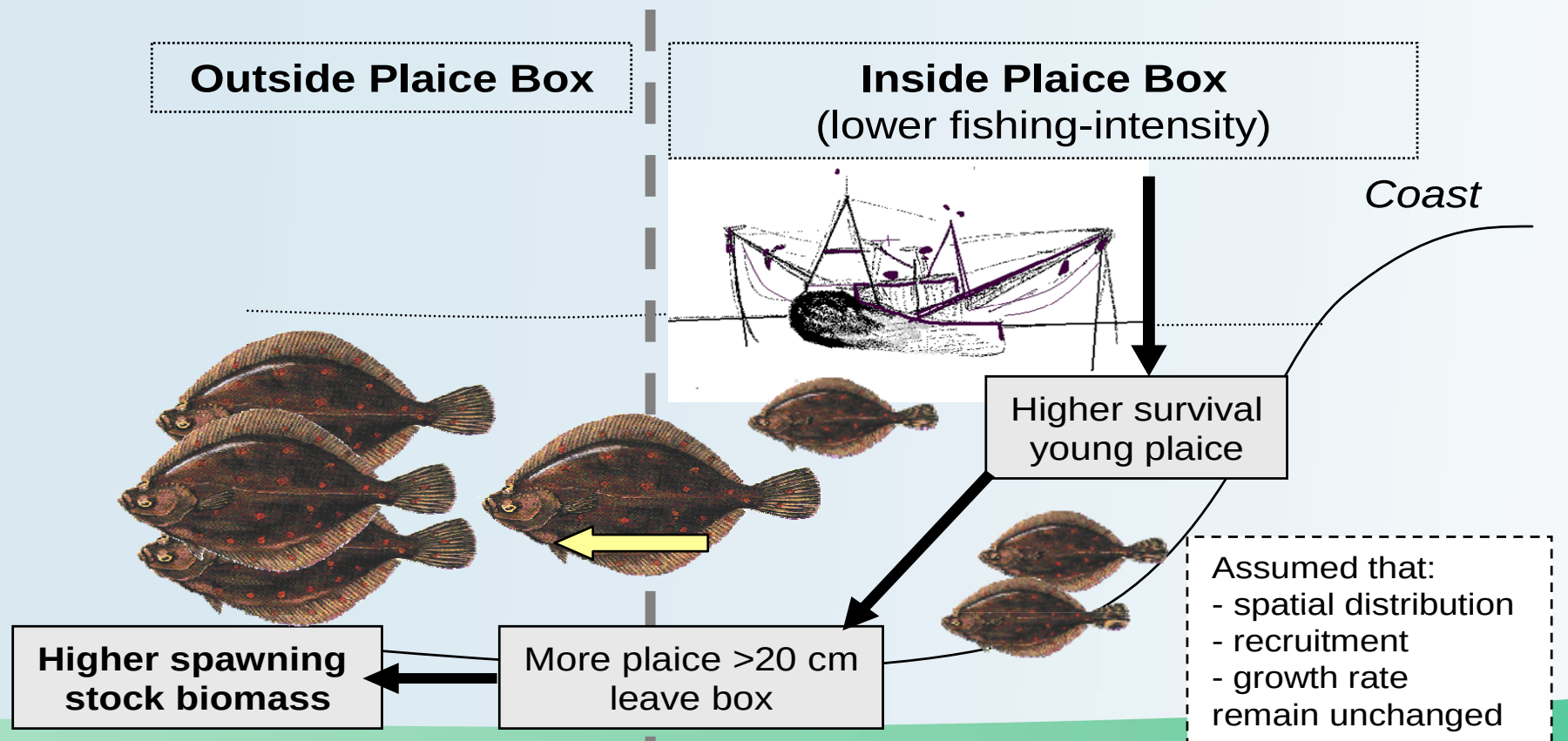
www.surfgroepen.nl/sites/CMP/maspnose

Aims

- Reduce discard of juvenile plaice
- Enhance the spawning stock biomass (SSB)
- Enhance landings of plaice for fisheries

(Beare et al. 2010)

a) Scientists (expectancy beforehand):

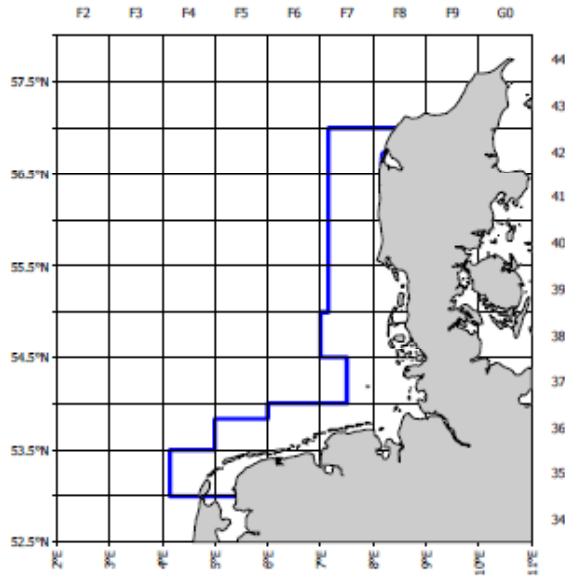


Plaice Box



>221kW

NLD Beam 16-31mm >221kW



NLD

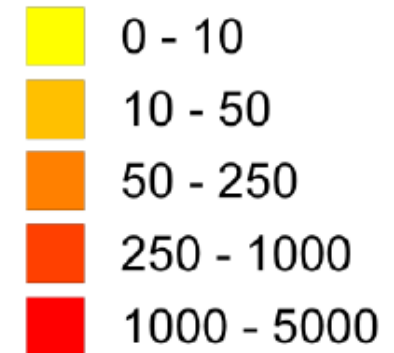
Effort 2008

BEAM.16-31mm

from
VMS
Data

GER

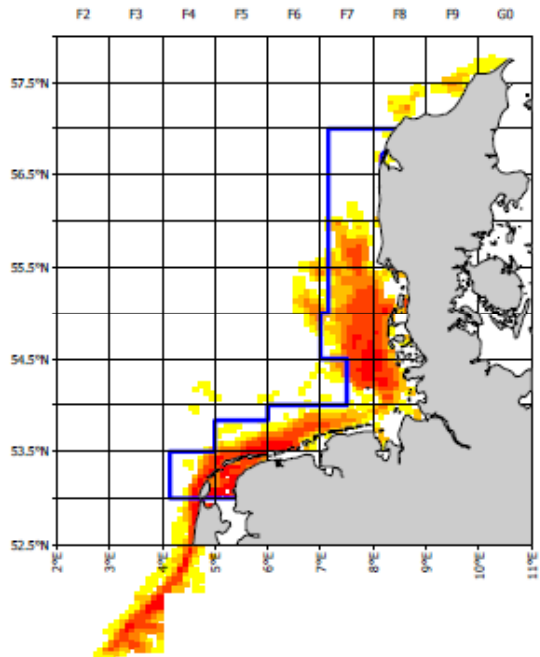
hours fishing per year



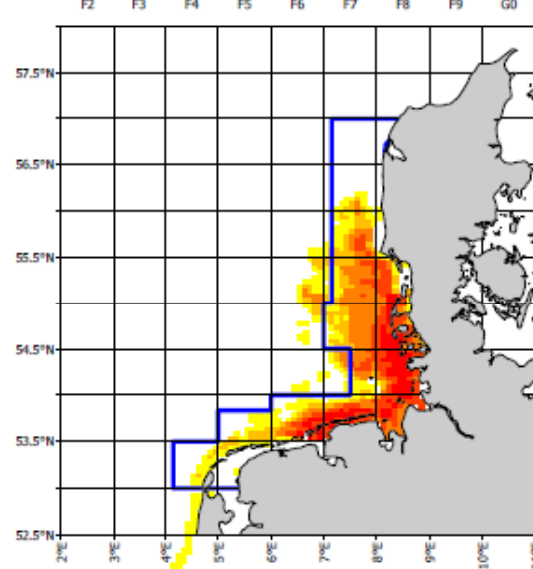
DEN

<=221kW

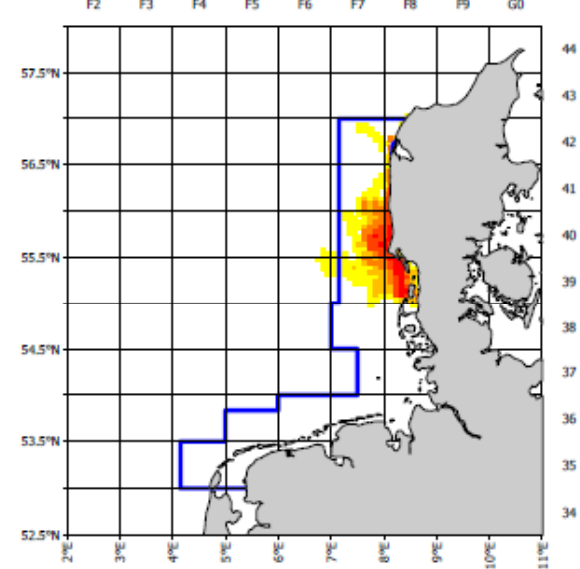
NLD Beam 16-31mm <=221kW



GER Beam 16-31mm <=221kW



DEN Beam 16-31mm <=221kW



(Beare et al. 2010)

1. Ongoing projects: COEXIST & MESMA
 - a) Stakeholder involvement & interviews
 - b) Mapping of activities
 - c) Cross border analyses
 - d) Conflict matrix
 - e) Analyses of synergies
 - f) Defining incompatibility and
 - g) Irreversible Activities e.g. pipelines, platforms, wind farms
 - h) ...

Nature 2000 in territorial waters & National Parks

e.g. Activities & Management in national park “Schleswig-Holsteinisches Wattenmeer”

- a) 3% of park area is “no use” zone for research, south of Hindenburgdamm (Sylt)
- b) Fishing for shrimps
 - I) is allowed in seal and bird protection areas, also in „Schutzzonen 1“
 - II) Only vessels ≤ 221 kW, ≤ 24 m vessel length
- c) Fishing for Blue Mussels
 - I) Restricted to 8 vessels
 - II) Eulitoral zone and Z1 (mostly) protected
 - III) Only fishing for seed mussels allowed
 - IV) Fishing of mussels for consumption from culture areas only
 - V) Size of culture area 2000 ha at its maximum
 - VI) Areas rented from German federal land (280.000 € p.a.)
 - VII) Monitoring of mussel stock each year
 - VIII) Fisheries surveillance by Black-Box (GPS)
- d) Aquaculture of Pacific Oyster (30 ha)
- e) Coastal protection, tourism, etc., etc.

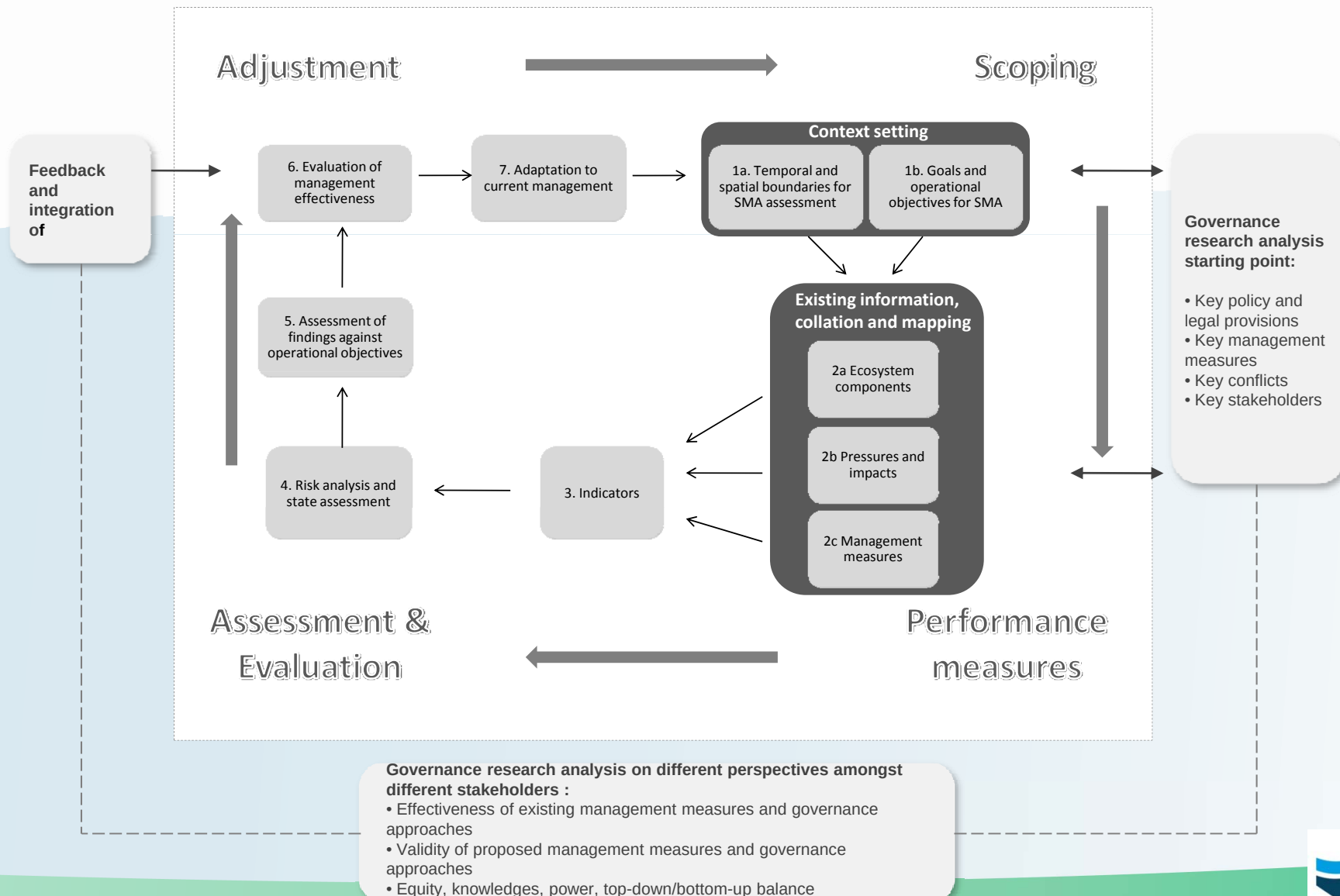
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 - III) Use of DC instead of AC

Resolving Conflicts

a) Marine spatial planning (MSP)

II) Monitoring and evaluation





MESMA: for sustainable use of European seas and coastal areas

EU FP7 project 2009-2013

www.mesma.org



Data SIO, NOAA, U.S. Navy, NGA, GEBCO
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 Image © 2010 TerraMetrics
 © 2010 Cnes/Spot Image

lat 46.868993° lon 26.034941° elev 0 m



Eye alt 8500.84 km